

WE CLAIM:

1. A cleaning composition comprising:
  - (a) an anionic surfactant component; and
  - (b) a water hardness anti-precipitant mixture comprising a dispersant and at least one of a sheeting agent and/or humectant at a weight ratio of the dispersant to total amount of the sheeting agent and the humectant of between about 1:75 and about 75:1.
2. A cleaning composition according to claim 1, wherein the amount of the water hardness anti-precipitant mixture to the anionic surfactant component is sufficient to prevent visible precipitation when the cleaning composition is diluted with dilution water having one grain hardness at a weight ratio of 1:1.
3. A cleaning composition according to claim 1, wherein the amount of the water hardness anti-precipitant mixture to the anionic surfactant component is sufficient to prevent visible precipitation when the cleaning composition is diluted with dilution water having 20 grain hardness at a weight ratio of 1:16.
4. A cleaning composition according to claim 1, wherein the anionic surfactant component comprises at least one of alkyl aryl sulfonate, secondary alkane sulfonate, alkyl methyl ester sulfonate, alpha olefin sulfonate, alkyl ether sulfate, alkyl sulfate, alcohol sulfate, and mixtures thereof.
5. A cleaning composition according to claim 1, wherein the cleaning composition contains between about 0.1 wt.% and about 10 wt. % of the anionic surfactant component.

6. A cleaning composition according to claim 1, wherein the dispersant comprises at least one of a polymer and an oligomer, wherein the polymer and the oligomer contain pendant carboxylic acid groups, pendant carboxylic salt groups, or mixtures thereof.

7. A cleaning composition according to claim 1, wherein the dispersant comprises at least one of poly(acrylic acid), poly (acrylic acid/maleic acid) copolymer, poly(maleic acid/olefin) copolymer.

8. A cleaning composition according to claim 1, wherein the cleaning composition contains between about 0.01 wt.% and about 10 wt. % of the dispersant.

9. A cleaning composition according to claim 1, wherein the sheeting agent comprises at least one of nonionic block copolymer, alcohol alkoxylate, alkyl polyglycoside, zwitterionic, and mixtures thereof, and the humectant comprises at least one of glycerine, alkylene glycol, sorbitol, alkyl polyglycoside, polybetaine polysiloxane, and mixtures thereof.

10. A cleaning composition according to claim 1, wherein the cleaning composition comprises between about 0.001 wt. % and about 10 wt. % of the sheeting agent and/or humectant.

11. A cleaning composition according to claim 1, further comprising an organic solvent.

12. A cleaning composition according to claim 11, wherein the organic solvent comprises at least one of glycol ether and derivatives of glycol ether.

13. A cleaning composition according to claim 11, wherein the cleaning composition comprises between about 0.1 wt.% and about 99 wt.% of the organic solvent.

14. A cleaning composition according to claim 1, further comprising between about 0.1 wt.% and about 99 wt.% deionized water.

15. A cleaning composition according to claim 14, wherein the cleaning composition is provided as a use solution resulting from a dilution of the cleaning composition with water of dilution at a weight ratio of cleaning composition to water of dilution of between about 1:1 and about 1:1000.

16. A cleaning composition according to claim 15, wherein the water of dilution comprises water having a hardness of at least about 1 grain.

17. A method for providing a ready to use cleaning composition, the method comprising:

(a) diluting a concentrate with water of dilution to provide a ready to use composition, the concentrate comprising:

(i) an anionic surfactant component; and

(ii) a water hardness anti-precipitant mixture comprising a dispersant and at least one of a sheeting agent and a humectant at a weight ratio of dispersant to total amount of sheeting agent and humectant of about 1:75 to about 75:1.

18. A method according to claim 17, wherein the step of diluting comprising mixing the concentrate and the water of dilution at a weight ratio of at least 1:1.

19. A method according to claim 17, wherein the amount of the water hardness anti-precipitant mixture to the anionic surfactant component is sufficient to prevent visible precipitation when the cleaning composition is diluted with dilution water having one grain hardness at a weight ratio of 1:1.

20. A method according to claim 17, wherein the amount of the water hardness anti-precipitant mixture to the anionic surfactant component is sufficient to prevent visible precipitation when the cleaning composition is diluted with dilution water having 20 grain hardness at a weight ratio of 1:16.

21. A method according to claim 17, wherein the anionic surfactant component comprises at least one of alkyl aryl sulfonate, secondary alkane sulfonate, alkyl methyl ester sulfonate, alpha olefin sulfonate, alkyl ether sulfate, alkyl sulfate, alcohol sulfate, and mixtures thereof.

22. A method according to claim 17, wherein the cleaning composition contains between about 0.1 wt.% and about 10 wt. % of the anionic surfactant component.

23. A method according to claim 17, wherein the dispersant comprises at least one of a polymer and an oligomer, wherein the polymer and the oligomer contain pendant carboxylic acid groups, pendant carboxylic salt groups, or mixtures thereof.

24. A method according to claim 17, wherein the dispersant comprises at least one of poly(acrylic acid), poly (acrylic acid/maleic acid) copolymer, poly(maleic acid/olefin) copolymer.

25. A method according to claim 17, wherein the cleaning composition contains between about 0.01 wt.% and about 10 wt. % of the dispersant.

26. A method according to claim 17, wherein the sheeting agent comprises at least one of nonionic block copolymer, alcohol alkoxylate, alkyl polyglycoside, zwitterionic, and mixtures thereof, and the humectant comprises at least one of glycerine, alkylene glycol, sorbitol, alkyl polyglycoside, polybetaine polysiloxane, and mixtures thereof.

27. A method according to claim 17, wherein the cleaning composition comprises between about 0.001 wt. % and about 10 wt. % of the sheeting agent and/or humectant.

28. A method according to claim 17, wherein the cleaning composition further comprises an organic solvent.

29. A method according to claim 28, wherein the organic solvent comprises at least one of glycol ether and derivatives of glycol ether.

30. A method according to claim 28, wherein the cleaning composition comprises between about 0.1 wt.% and about 99 wt.% of the organic solvent.

31. A method according to claim 17, further comprising between about 0.1 wt.% and about 99 wt.% deionized water.

32. A method according to claim 17, wherein the step of diluting comprising mixing the concentrate and the water of dilution at a weight ratio of between about 1:1 and about 1:1000.

33. A method according to claim 32, wherein the water of dilution comprises water having a hardness of at least about 1 grain.

34. A method according to claim 32, wherein the water of dilution comprises water having a hardness of at least about 10 grains.

35. A method for cleaning a surface, the method comprising:

(a) diluting a concentrate with water of dilution to provide a ready to use composition, the concentrate comprising

- (i) an anionic surfactant component; and
  - (ii) a water hardness anti-precipitant mixture comprising a dispersant and at least one of a sheeting agent and a humectant at a weight ratio of dispersant to total amount of sheeting agent and humectant of about 1:75 to about 75:1; and
- (b) applying the ready to use composition to a surface for cleaning the surface.

36. A method according to claim 35, wherein the surface comprises a glass surface.

37. A method according to claim 36, further comprising a step of mechanically foaming the ready to use cleaning composition.

38. A method according to claim 37, wherein the step of mechanically foaming takes place without a propellant or a blowing agent.

39. A cleaning composition comprising:

- (a) an anionic surfactant component; and
- (b) a water hardness anti-precipitant mixture comprising a dispersant and at least one of a sheeting agent and/or a humectant at a weight ratio of the dispersant to the total amount of the sheeting agent and the humectant sufficient to prevent visible precipitation of the anionic surfactant on a glass surface when the cleaning composition is diluted with water of dilution at a weight ratio of the cleaning composition to water of dilution of between about 1:1 and about 1:100 and wherein the water of dilution contains at least 5 grains hardness.